IN THE CLAIMS

1. (currently amended) An ~~O~~optical assembly ~~with~~comprising a laterally graded reflective multilayer ~~(10,20)~~ ~~whose~~having a reflecting surface ~~is~~ to reflect incident X-rays under low incidence angles while producing a two-dimensional optical effect, ~~characterized by the fact that~~ said reflecting surface ~~is~~ compris~~ed~~ing ~~of~~ a single surface~~, said reflecting surface being~~ conformed along two curvatures corresponding to two different directions.

2. (currently amended) The ~~O~~optical assembly of ~~set forth in the preceding~~ claim 1, ~~characterized in that~~wherein the laterally ~~gradient~~ graded reflective multilayer extends along ~~the~~ a meridional direction of the incident X-rays.

3. (currently amended) The ~~O~~optical assembly as claimed in ~~one of the preceding~~ claim~~s~~ 1 or 2, wherein~~characterized in that~~ the reflecting surface is smooth.

4. (currently amended) The ~~O~~optical assembly ~~as claimed in one~~ of ~~the preceding~~ claim~~s~~ 1, ~~characterized in that~~wherein the two-dimensional optical effect is obtained by a single reflection of incident rays on the optical assembly.

5. (currently amended) The ~~O~~optical assembly ~~as claimed in one~~ of ~~the preceding~~ claim~~s~~ 1, ~~characterized in that said~~wherein the two different directions correspond respectively to ~~the~~ sagital ~~direction~~ and ~~to the~~ meridional directions of the incident X-rays.

6. (currently amended) The ~~O~~optical assembly ~~as claimed in one~~ of ~~the preceding~~ claim~~s~~ 1, ~~characterized in that~~wherein the multilayer is a depth graded multilayer.

7. (currently amended) The ~~O~~optical assembly ~~as claimed in one~~ of ~~the preceding~~ claim~~s~~ 1, ~~characterized in that said~~wherein the reflecting surface is adapted to reflect rays of Cu-K α peaks.

8. (currently amended) The ~~O~~optical assembly ~~as claimed in one~~ of ~~the preceding~~ claim~~s~~ 1, wherein ~~characterized in that~~ a first one of said two curvatures defines a circle.

9. (currently amended) The ~~O~~optical assembly ~~as claimed in any~~ of claim~~s~~ 1, ~~to 7 characterized in that~~ wherein a first one of said two curvatures defines a curve different from a circle.

10. (currently amended) The ~~O~~optical assembly ~~as claimed in the preceding~~of claim 9, ~~characterized in that a~~wherein the first ~~of said two~~ curvature~~s~~ defines an ellipse or a parabola.

11. (currently amended) The ~~O~~optical assembly ~~as claimed in~~ claim~~s~~ 1, ~~to 7 characterized in that~~ wherein a first one of said two curvatures defines an open or a closed curve different from a circle, an ellipse or a parabola.

12. (currently amended) The ~~O~~optical assembly as ~~claimed~~ in any one of ~~the four preceding~~ claims 8, 9, 10 or 11, wherein~~characterized in that~~ ~~the~~ a second one of said two curvatures defines a circle.

13. (currently amended) The ~~O~~optical assembly as in any one of claims 8, 9, 10 or 11, ~~claimed in claims 1 to 11 characterized in that~~wherein ~~the~~ a second one of said two curvatures defines a curve different from a circle.

14. (currently amended) The ~~O~~optical assembly of~~as claimed in the preceding~~ claim 13, ~~characterized in that~~ wherein the second ~~of said two~~ curvature~~s~~ defines an ellipse or a parabola.

15. (currently amended) The ~~O~~optical assembly as in any one of claims 8, 9, 10 or 11,~~as claimed in claims 1 to 11 characterized in that~~ wherein ~~the~~ a second one of said two ~~of said two~~ curvatures defines an open or a closed curve different from a circle, an ellipse or a parabola.

16. (currently amended) The ~~O~~optical assembly of~~as claimed in~~ claim~~s~~ 1, ~~to 7 characterized in that~~ wherein the reflecting surface has a geometry of substantially toroidal shape.

17. (currently amended) The ~~O~~optical assembly of~~as claimed in~~ claim~~s~~ 1,~~to 7 characterized in that~~ wherein the reflecting surface has a geometry of substantially paraboloidal shape.

18. (currently amended) The ~~O~~optical assembly of~~as claimed in~~ claim~~s~~ 1,~~to 7 characterized in that~~ wherein the reflecting surface has a geometry of substantially ellipsoidal shape.

19. (currently amended) The ~~O~~optical assembly of~~as claimed in~~ claim~~s~~ 1,~~to 7 characterized in that~~ wherein the reflecting surface has a ~~geometry~~ substantially circular geometry~~in shape~~ along a first direction~~,~~ and a substantially elliptic or parabolic geometry along a second direction.

20. (currently amended) The ~~O~~optical assembly ~~as claimed in one~~ of ~~the preceding~~ claims~~s~~ 1,~~characterized in that~~ wherein the reflecting surface has a sagital curvature radius of less than 20 mm.

21. (currently amended) The ~~O~~optical assembly ~~as claimed in one~~ of~~ the preceding~~ claim~~s~~ 1, ~~characterized in that a~~further comprising at least one window that is opaque to X-rays, ~~and containing~~the at least one window having an aperture therein and being~~is~~ associated with ~~at the~~ an input ~~and/~~or an output of the optical assembly~~,~~ in order to control ~~the input and/or output~~a flux of the optical assembly.

22. (currently amended) The ~~O~~optical assembly ~~as claimed in the preceding~~ of claim 21, wherein~~characterized in that~~ the at least one window~~s are~~ is removable.

23. (currently amended) The ~~O~~optical assembly ~~as claimed in one~~ of ~~the two preceding~~ claim~~s~~ 21, wherein~~ characterized in that~~ the ~~assembly comprises an~~ aperture is located at ~~the~~an input cross-section, and the size and the shape of said aperture ~~located at the input cross-section~~ can be adjusted in order to control ~~the~~ an incident flux.

24. (currently amended) The ~~O~~optical assembly ~~as claimed in one~~ of ~~the three preceding~~ claim~~s~~ 21, wherein ~~characterized in that~~ the ~~assembly comprises an~~ aperture is located at ~~the~~an output cross-section, and the size and the shape of said aperture ~~located at the output cross-section~~ can be adjusted in order to control a~~the~~ reflected flux.

25. (currently amended) The ~~O~~optical assembly as claimed in one of claims 21 or~~to~~ 22, ~~characterized in that~~wherein the

apertures~~s~~ of the at least one windows~~s~~ is~~are~~ dimensioned ~~so as~~ to realize a flux/divergence compromise of ~~the~~ radiation.

26. (currently amended) A ~~Manufacturing~~ method of manufacturing an optical assembly comprising a laterally graded reflective multilayer having a reflecting surface to reflect incident X-rays under low incidence angles while producing a two-dimensional optical effect, said reflecting surface comprising a single surface conformed along two curvatures corresponding to two different directions, ~~as claimed in one of the preceding claims, characterized in that~~ the method ~~includes the~~ comprising:

providing a substrate having a curvature along a first direction;

coating the substrate; and

curving the substrate along a second direction different than the first direction.

27. (currently amended) The ~~M~~method ~~as claimed in the preceding~~of claim 26, wherein ~~characterized in that~~ the first direction along which the substrate already has a curvature corresponds to ~~the~~ a sagital direction of the optical assembly.

28. (currently amended) The ~~M~~method ~~as claimed in the preceding~~ of claim 27, ~~characterized in that said~~wherein the curvature of the substrate ~~which~~ correspond~~s~~ing to the sagital direction of the optical assembly defines a radius of curvature which is less than 20 mm.

29. (currently amended) The ~~M~~method as claimed in one of claims 27 or 28, wherein ~~the two preceding claims characterized in that~~ the second direction along which the substrate is curved

corresponds to ~~the~~ a meridional direction of the optical assembly.

30. (currently amended) The ~~M~~method ~~as claimed in one~~ of ~~the four preceding~~ claim~~s~~ 26, ~~characterized in that said~~wherein the substrate has a roughness lower than 10 rms.

31. (currently amended) The ~~M~~method ~~as claimed in one~~ of ~~the five preceding~~ claim~~s~~ 26, ~~characterized in that~~ wherein providing the substrate ~~itself is constituted,~~comprises ~~starting from~~providing an element in the form of a tube, cone, or pseudo-cone already having a curvature along a direction orthogonal to the axis of the tube, of the cone or of the pseudo-cone.

32. (currently amended) The ~~M~~method ~~as claimed in the preceding~~of claim 31, wherein ~~characterized in that~~ the element ~~is~~comprises a glass tube ~~with~~having a circular transversal cross-section.

33. (currently amended) The ~~M~~method ~~as claimed in the preceding~~of claim 32, ~~characterized in that~~wherein the glass is of a borosilicate glass 3.3 type~~the Duran type (registered trademark)~~.

34. (currently amended) The ~~M~~method ~~as claimed in one of~~ the ~~two preceding~~ claim~~s~~ 32, ~~characterized in that the constitution of the substrate includes the~~further comprising cutting ~~of~~ the glass tube along ~~the~~a longitudinal direction ~~of the tube, in such a way as to obtain a~~so that the substrate has a~~in the~~ shape of an open cylinder.

35. (currently amended) The ~~M~~method ~~as claimed in the preceding~~ of claim 34, further comprising~~,~~ ~~characterized in that~~

~~the cutting along the longitudinal direction of the tube is followed by~~ cutting in order to dimension the optical assembly in length after cutting the glass tube along the longitudinal direction.

36. (currently amended) The ~~M~~method ~~as claimed in one~~ of claim 26~~the ten preceding claims~~, ~~characterized in that~~wherein ~~the~~ coating the substrate is performed ~~in order~~ to ~~constitute~~achieve a multilayer before curving the substrate.

37. (currently amended) The ~~M~~method ~~as claimed in~~of claim~~s~~ 26, ~~to 35, characterized in that~~wherein the substrate is curved in order to conform it to ~~the~~ a predetermined geometry ~~sought~~ before the coating ~~it in order to constitute a multilayer~~step.

38. (currently amended) The ~~M~~method ~~as claimed in one~~ of ~~the twelve preceding~~ claim~~s~~ 26, ~~characterized in that~~further comprising coupling the optical assembly ~~is coupled~~ to a filter~~,~~ ~~in order~~ to provide attenuation of ~~the~~ undesired spectral bands while guaranteeing sufficient transmission of a predetermined wavelength band ~~for which reflecting the incident X-rays is sought~~.

39. (currently amended) The ~~M~~method ~~as claimed in the preceding~~of claim 38, ~~characterized in that~~wherein the filter ~~is~~comprises a 10-μm ~~N~~nickel filter.

40. (currently amended) The ~~M~~method ~~as claimed in one~~ of ~~the two preceding~~ claim~~s~~ 38, ~~characterized in that~~wherein the filter is fabricated~~realized~~ by one of ~~the following techniques~~:

~~- realization of two~~providing a pair of filters ~~whose~~ to obtain a combined thickness corresponding~~s~~ to ~~the~~a predetermined filter thickness ~~sought~~, a first one of the pair

of filters positioned ~~respectively~~ on ~~the~~an input~~ and output~~ window~~s~~ and a second one of the pair of filters being positioned on an output window of ~~the radiation of~~ a protective housing containing the optical assembly; or

~~-~~depositing~~ of~~ a layer of filtering material on the multilayer~~ coating~~, the layer of filtering material having~~with~~ a coating thickness ~~that is~~ approximately given by the following relationship:

$$d = (e \sin \theta) / 2,$$

wherein e is ~~the~~a required filter "optical" thickness and θ ~~the~~is an angle of incidence~~ on the optic)~~.

41. (currently amended) A ~~D~~device for generating and conditioning X-rays ~~for applications~~ for angle-dispersive X-ray reflectometry, the device comprising:~~ including~~

an optical assembly ~~as claimed in one of claims 1 to 25~~comprising a laterally graded reflective multilayer having a reflecting surface to reflect incident X-rays under low incidence angles while producing a two-dimensional optical effect, said reflecting surface comprising a single surface conformed along two curvatures corresponding to two different directions; and ~~coupled to~~

a source of the incident X-rays coupled to the optical assembly so~~in such a way that~~ the incident X-rays ~~emitted by the source~~ are conditioned along two dimensions ~~so as~~ to adapt ~~the~~a beam emitted by the source in destination of a sample, with the X-rays having different angles of incidence on the sample~~ which is considered~~.

42. (currently amended) The ~~D~~device ~~as claimed in the preceding~~ of claim 41, wherein ~~characterized in that~~ the dispersion of angle incidences on the sample corresponds

substantially to ~~the~~an angular dispersion along ~~the~~a sagital dimension of the beam reflected by the optical assembly.

43. (currently amended) The ~~D~~device as claimed in one of ~~the two preceding~~ claims~~s~~ 41 or 42, wherein ~~characterized in that~~ the optical assembly is directed ~~with~~relative ~~regard~~ to the sample ~~in such a way~~so that the normal in ~~the~~a center region of the optical assembly is approximately parallel to the surface of the sample.

44. (currently amended) The ~~D~~device ~~as claimed in one~~ of ~~the three preceding~~ claims~~s~~ 41, ~~characterized in that~~wherein a capture angle at ~~the~~a level of the sample is greater than 2° along a first dimension corresponding to ~~the~~a sagital dimension of the optical assembly and about 1° along a second dimension corresponding to ~~the~~a meridional dimension of the optical assembly, the optical assembly being positioned ~~in such a way that the~~so dispersion in angles of incidence of the X-rays on the sample is greater than 2°, the sample being positioned at least ~~a distance greater than~~ 15 cm ~~in relation to~~from the optical assembly.